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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/333,849	06/15/1999	CECIL J. ASWELL	T1-27351	4617

23494 7590 11/16/2004

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EXAMINER
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NGUYEN, JOHN B

ART UNIT	PAPER NUMBER
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2819

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/333,849

**Applicant(s)**

ASWELL ET AL.

**Examiner**

John B Nguyen

**Art Unit**

2819

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

### A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 June 1999 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### **SPECIFICATION**

1. In the specification page 10, lines 9 and 11, please fill in Ser. No.

### **Claim Rejections - 35 USC § 102**

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Levinson (U.S Patent No. 5,796,361).

Figures 2-7 are discloses a charge coupled circuit and the limitations for claims 1-25.

4. Regarding to claim 1, a charge-coupled amplifier circuit (100), consisting of: an analog-to-digital converter (106) which use a first voltage as a first reference(Vref+) to convert an analog input (output from PGA 104) to a digital output (Dout), and which is also connected to receive a second reference voltage (Vref-); and a single-stage inverting amplifier (104) which is connected to receive charge-coupled inputs (from

Art Unit: 2819

CCD), and to amplify the inputs with reference to the second voltage, and to drive the analog input accordingly.

5. Regarding to claim 2, wherein the first and second voltages both differ from ground ( $V_{ref+}$ ,  $V_{ref-}$ ).
6. Regarding to claim 3, wherein said first voltage differs from ground by a predetermined offset value (fig.7).
7. Regarding to claim 4, wherein the inverting amplifier is autozeroed during a pre-charge phase (fig.7).
8. Regarding to claim 5, wherein the inverting amplifier is a programmable gain amplifier (104).
9. Regarding to claim 6, wherein the first voltage is proportional to the second reference voltage ( $V_{ref+}$ ,  $V_{ref-}$ ).
10. Regarding to claim 7, wherein the inverting amplifier is a single supply (output the analog signal into ADC 106) charge-coupled operational amplifier.
11. Regarding to claim 8, wherein said charge-coupled inputs are supplied by a multiplicity of matched capacitors (column 1, lines 8-16).
12. Regarding to claim 9, wherein the voltages at respective the charge-coupled inputs are provided by corresponding outputs of active integrators connected to photosensitive elements (CCD).
13. Regarding to claim 10, an optical sensor array integrated circuit, comprising: an array of photosensitive elements for sensing light energy (CCD); and a charge-coupled amplifier circuit (100), consisting of an analog-to-digital converter (ADC,106) which uses

Art Unit: 2819

a first voltage ( $V_{ref+}$ ) as a first reference to convert an analog input (output from PGA) to a digital output ( $D_{out}$ ), and which is also connected to receive a second reference voltage ( $V_{ref-}$ ); and a single-stage inverting amplifier (PGA, 104) which is connected to receive charge-coupled inputs (from CCD), and to amplify the inputs with reference to the second voltage, and to drive said analog input accordingly.

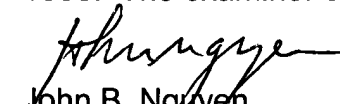
14. Regarding to claim 11, wherein the first voltage differs from ground by a predetermined offset value (fig.7).
15. Regarding to claim 12, wherein the inverting amplifier is autozeroed during a pre-charge phase (fig.7).
16. Regarding to claim 13, wherein the voltages at respective the charge-coupled inputs are provided by corresponding outputs of active integrators connected to said photosensitive elements (CCD).
17. Regarding to claim 14, wherein the array is a substantially linear array (column 1, lines 8-16).
18. Regarding to method claims 15-25, the apparatus claims 1-14 discussed above would perform the claims of method.

### ***Conclusion***

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (See enclosed Form PTO-892). U.S Patent No. 5,027,117; 5,513,018 and 5,387,986 are also discussed charge-coupled circuit and analog-to-digital.

Art Unit: 2819

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John B Nguyen whose telephone number (571) 272-1808. The examiner can normally be reached on 8AM-4: 30 PM M-F.

  
John B. Nguyen  
November 11, 2004